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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/536,743

05/27/2005

Estill Thone Hall Jr.

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EXAMINER

DOWLING, WILLIAM C

ART UNIT

PAPER NUMBER

2851

MAIL DATE

DELIVERY MODE

05/07/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/536,743	Applicant(s) HALL JR. ET AL.	
	Examiner William C. Dowling	Art Unit 2851	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5-18, 20-22 and 24-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 20-22 and 24-26 is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f):
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-2, 6, 11-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Sayag (7,002,533).

Sayag (7,002,533) discloses a projection system comprising:

A first imager (330) to modulate light;

A second imager (325) of a different size to further modulate the light.

As noted in Column 6 Lines 12-19, the use of 2 modulators provides cumulative gray scale modulation of the image. Column 5 Lines 3-4 disclose that the pixels of the two imagers are similar.

Sayag further teaches the use of a reflective modulator for the first imager, such as a DMD or LCos type. (Column 5 Lines 61-64)

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3, 5-6, 8-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO01/69941 in view of Sayag .

Claims 1-3, 5-6, 8-18

WO 01/69941 discloses a projection device comprising:

a first imager (16A) to modulate light;

a relay lens system (18A);

a second imager (20A) to further modulate the light.

WO 01/69941 teaches the use of digital imagers receiving pulse modulation in the form of DMD's. WO 01/69941 does not teach the use of LCOS systems as the modulators.

Sayag teaches the use of modulators of different sizes to provide a cumulative grey scale modulation of an image. Sayag further teaches the use of a reflective modulator for the first imager, such as a DMD or LCos type. (Column 5 Lines 61-64)

Lacking any criticality to the functioning of the invention it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device of WO 01/69941 by the substitution of a different type of reflective modulator, such as an LCOS as taught by Sayag, because both types would enable grayscale modulation. It further would have been obvious to one skilled in the art to utilize different sized modulators because Sayag teaches that a cumulative gray scale effect may still be adequately realized with modulators of different sizes. The use of differently sized modulators would allow for different levels of leakage.

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1. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO 01/69941 and Sayag and further in view of Hansen et al. (6,234,634).

WO 01/69941 and Sayag disclose the invention substantially as claimed but does not teach the provision of a polarizing beam splitter in the light path.

Hansen et al. discloses the use of a PBS adjacent reflective light valves, such as LCOS's.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combination of WO 01/69941 and Sayag by the addition of a PBS when using polarization based reflective light valves in order to change the light path of the modulated light from the incident light.

Allowable Subject Matter

2. Claims 20-22, 24-26 are allowed.

Response to Arguments

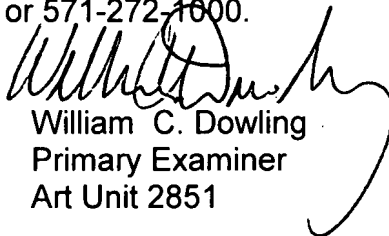
3. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C. Dowling whose telephone number is 571-272-2116. The examiner can normally be reached on MON-THURS.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diane Lee can be reached on 571-272-2399. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2851

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



William C. Dowling
Primary Examiner
Art Unit 2851

wcd